NOTES from ABROAD

Great Britain

It was the impact of the first World War which led the British Government to organized action regarding scientific research in the civil field. The Department of Scientific and Industrial Research, usually known as DSIR, was established during that war as a separate department with the Lord President of the Council as the responsible Minister, and organizations, also under the Lord President, were also formed for agricultural and medical research.

The structure of civil research developed by successive Governments since then has been based on these three sister organizations and in the spheres of physical, chemical, and industrial interest the main part of the British Government's civil research effort has been centered upon fourteen research organizations under DSIR.

Besides the National Physical Laboratory, the Geological Survey, and the Chemical Research Laboratory, these include stations dealing with building, the preservation and storage of foodstuffs, forest products, fuel, roads, water pollution, radio, and the infestation of stored products by pests. Since the last war two new organizations have been added; one for basic research in the mechanical engineering sciences, the other for the study, by means of models, of the changes taking place in waterways, rivers and estuaries, and of the design of harbours and other civil engineering works, that is to say, what is generally known as loose boundary hydraulics.

DSIR through these organizations provides a central scientific service for Government, their work contributes broadly towards the achievement of a higher standard of living and working conditions, to the saving of scarce materials, and to increasing the efficiency of their manufacture and use. Much of it also contributes towards wise capital expenditure by enabling programmes of public works to be executed as well and as economically as possible. The importance of their contribution has increased with the changing functions of Government, which, in Graham Wallas's famous phrase, "has come to be engaged not merely in preventing wrong things being done, but in bringing it about that right things are done." In discharging this more positive function it is necessary that scientific knowledge should permeate the executive departments of state so that science can, to an increasing extent, become a basis for the formulation of policy. Interesting problems of organization thus arise, namely, how can a central scientific department such as DSIR, which is not itself an executive department, best serve other departments, and in what way should its service be supplemented by scientific work in the executive departments themselves? No attempt has been made in Great Britain to devise a rigid formula which can be applied to answer these questions, but the Lord President has set up machinery in the form of an advisory council on scientific policy by which the problems presented by the needs of each executive department can be considered in consultation, and a practical solution, economical in manpower and scientific effort, reached.

One general way, however, by which a solution is being sought, is through the appointment in each executive department of a scientific adviser of sufficient seniority in the departmental hierarchy to ensure that his advice can be tendered at the levels at which policy is decided. His functions and those of his staff are threefold: to identify the problems within his department which are suitable for scientific treatment; to see that these problems are passed to the research organizations best able to deal with them; and to interpret incoming scientific material to the special needs of his department.

This approach to the problem preserves the independence and initiative of the central Government research bodies, and at the same time encourages those executive departments to whose work science can contribute to assume a more positive role in the organization of the research required for their own purposes, and in supervising the application of its results.

Besides carrying out research to meet the needs of Government, and through Government of the community, DSIR and its stations also serve the nation through industry by conducting research on generic problems, as, for example, those presented by industrial building, the better utilization of fuel, or the treatment of industrial effluents—matters which affect nearly all branches of industry. The results of the Department's work are freely made available through appropriate publication. There is, however, a large amount of knowledge in the possession of the Department which is not, for one reason or another, covered by these publications. This is held generally available, and many thousands of inquiries from industrial sources are dealt with each year by the DSIR stations.

In addition to the functions already described DSIR has also the task of encouraging research in industry itself. As elsewhere industrial research in Great Britain is carried out mainly in the laboratories of individual firms. To stimulate such research the Government has, for a long time, exempted the current expenditure of private firms on research from income tax. While, more recently, provision has been made whereby capital expenditure on research laboratories and pilot plants can

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be written off for income tax purposes in five equal installments.

There are, however, many firms which are unable to maintain adequate research organizations of their own. These are largely catered for by co-operative research associations established under a scheme formulated by DSIR early in its history. The research associations are self-governing bodies formed on a national basis to serve particular industries or groups of allied industries. They are financed by contributions by their member firms supplemented by substantial grants from DSIR. The co-operative research movement has grown extremely rapidly since the war. There are now forty research associations, about twice the number actively at work before the war. These cover, with very few exceptions, the main industries of the country. For a very modest contribution a firm is enabled by joining a research association to share in research costing thousands of pounds, and in some cases hundreds of thousands a year. The associations also keep their members informed on scientific and technical developments throughout the world, provide them with advice on their day-to-day problems, and ensure that the industry has an opportunity of receiving early knowledge of developments likely to affect its future.

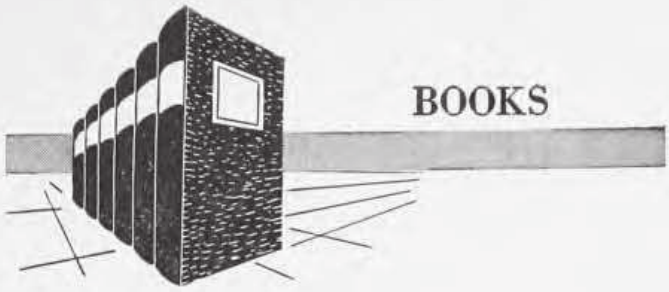
Although intended originally to meet the needs of smaller firms, the larger firms are also enthusiastic supporters of the research associations mainly because of the work of a long range character which they carry out, the results of which can be rapidly developed by the research department of individual firms to meet their particular needs.

Besides encouraging in all possible ways research and development in industry the British Government is much alive to the importance of encouraging the work of universities.

General support to the universities is provided on the recommendation of the University Grants Committee, which is a Committee of the Treasury, but, in addition, DSIR makes grants to individual research workers in support of particular items of work and operates a scheme of maintenance grants for training post-graduate students in the methods of research so as to provide trained workers for all types of laboratories. Under this scheme young graduates work under the supervision of a selected senior research worker for perhaps two or three years on a problem selected by him, and the aim is to turn out men trained in the general methods of science rather than experts on a particular subject.

Experience has shown that most of the really great advances in science have come from small teams of workers inspired by men with ideas. In administrating the grants to individual university workers the Department aims at ensuring that these leaders of science lack neither disciples, assistants or equipment. When their needs in these respects have been satisfied they are left free from irksome restrictions to conduct the research on the lines which appear to them to be most fruitful.

SIR EDWARD APPLETON



More for the Record

ATOMIC ENERGY, ITS INTERNATIONAL IMPLICATIONS. Royal Institute of International Affairs, London & New York, 1948, 4/0; being A Discussion by a Chatham House Study Group (Sept. 1946–Sept. 1947) composed of Lord Hankey, Sirs Henry Dale, Oliver Franks, Arthur Salter, and Charles Webster, Professors Cockcroft, Oliphant, Peierls, and Tilley, and Doctors Desch and Wimperis, and others.

The report of the discussions of the distinguished members of this group is an interesting and, in many ways, valuable companion-piece to the recent book by P. M. S. Blackett (Military and Political Consequences of Atomic Energy, reviewed in these columns in March, 1949). This is not to say that they are similar.

During the almost four years since an atomic bomb was first detonated a very great deal has been written in consequence. For people in this country at least, the main stream of serious writing started with the book One World or None, and continued or was closely followed in the Bulletin of the Atomic Scientists past the Acheson-Lilienthal Report far into the deliberations of the United Nations Atomic Energy Commission. And there, it now seems to many, this hopeful flood has been largely swallowed up in insatiable sands. Meanwhile, somewhat off to the left, Blackett has announced that from his vantage point it is clear that American and British doctrine has all along been trying to flow uphill.

Before one can dismiss Blackett's main qualitative military theses it will be necessary that they be demolished by arguments at least as rational and specific as those which led him to his conclusions. This does not yet seem to have been done; so that for the present, at any rate, his book should be adjoined to the record of the discussion of the significance of the atomic bomb.

Although the book by Blackett is the latest in the field, the most comprehensive, and attempts (or at least professes) to survey the situation up to date, there will be rather few in this country who will be content to have it used as the primary source book in the military and political consequences of atomic energy. It is in this context that one might give consideration to the report of the Chatham House group.

It does not give an exhaustive account, but it gives an account, which now seems complete enough, of the developments up to mid-1947. Although it presents the official American view, fully and fairly and with evident general approval—even saying that the American proposals to the UNAEC "must be recognized as an act of enlightened generosity without parallel in the whole history of international dealings"—it also raises the possibility of alternatives. Much of the feeling of early American writing on the subject, and the vagueness, is reflected in the frequent use of such words as annihila-

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